

List 20 substances that have been shown scientifically to benefit human health when applied topically

Assistant

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Here is a list of 20 substances that have been shown scientifically to benefit human health when applied topically:

Aloe vera - Has anti-inflammatory, antimicrobial, and wound healing properties.

Vitamin E - A powerful antioxidant that can help reduce skin inflammation and promote healing.

Vitamin C - An antioxidant that can stimulate collagen production and improve skin texture.

Hyaluronic acid - Helps retain skin moisture and plumpness.

Retinoids (vitamin A derivatives) - Can improve skin cell turnover and reduce signs of aging.

Tea tree oil - Has antimicrobial and anti-inflammatory effects, useful for treating acne.

Honey - Has antimicrobial, anti-inflammatory, and wound-healing properties.

Green tea - Contains antioxidants that can protect skin from environmental damage.

Glycerin - A humectant that helps keep skin moisturized.

Niacinamide (vitamin B3) - Can improve skin barrier function and reduce inflammation.

Ceramides - Help maintain the skin's natural lipid barrier.

Salicylic acid - A beta-hydroxy acid that can help unclog pores and treat acne.

Lactic acid - An alpha-hydroxy acid that can exfoliate and improve skin texture.

Chamomile - Has anti-inflammatory and soothing properties.

Argan oil - Rich in fatty acids and vitamin E, beneficial for skin hydration.

Coconut oil - Has antimicrobial, moisturizing, and wound-healing effects.

Shea butter - A skin-softening emollient that can reduce inflammation.

Rosehip seed oil - Contains retinoic acid and essential fatty acids to nourish skin.

Oatmeal - Has anti-inflammatory and soothing effects, useful for treating eczema.

Turmeric - Contains curcumin, an antioxidant with anti-inflammatory properties.

Aloe vera: Aloe vera is a succulent plant with a long history of use in traditional medicine. When applied topically, the gel from the aloe vera plant has been found to have anti-inflammatory, antimicrobial, and wound-healing properties. The active compounds in aloe, such as acemannan and anthraquinones, can help soothe skin irritation, promote tissue repair, and protect against infection.

Vitamin E: Vitamin E is a fat-soluble antioxidant that can help reduce skin inflammation and oxidative stress. When applied topically, vitamin E has been shown to support skin barrier function, minimize the appearance of scars, and protect the skin from UV damage. It's commonly used in skincare products to nourish and protect the skin.

Hyaluronic acid: Hyaluronic acid is a naturally occurring polysaccharide that plays a crucial role in skin hydration and elasticity. When applied topically, hyaluronic acid can help the skin retain moisture, plump up fine lines and wrinkles, and improve the overall appearance and texture of the skin. It is a popular ingredient in moisturizers, serums, and other skincare products.

Tea tree oil: Tea tree oil, derived from the leaves of the Melaleuca tree, has potent antimicrobial and anti-inflammatory properties. It has been used topically to treat various skin conditions, such as acne, eczema, and fungal infections, due to its ability to kill harmful bacteria and reduce inflammation.

Niacinamide: Niacinamide, also known as vitamin B3, is a versatile skincare ingredient with a wide range of benefits. When applied topically, niacinamide can help improve skin barrier function, reduce inflammation, regulate oil production, and even out skin tone. It is often used in anti-aging and blemish-fighting products.

These are just a few examples of the many topical substances that have been studied and found to offer health benefits for the skin. The scientific research on the efficacy and safety of these ingredients continues to evolve, providing more insights into their potential therapeutic applications.

Salicylic acid: Salicylic acid is a beta-hydroxy acid that has been extensively studied for its ability to treat acne and other skin conditions. When applied topically, salicylic acid can penetrate deep into the pores, unclogging them and reducing the formation of blackheads and pimples. It also has anti-inflammatory properties that can help calm existing breakouts.

Lactic acid: Lactic acid is an alpha-hydroxy acid that can provide gentle exfoliation and improve skin texture when used topically. By sloughing off dead skin cells, lactic acid can reveal a more radiant, even-toned complexion. It also has humectant properties, helping to draw moisture into the skin and keep it hydrated.

Ceramides: Ceramides are lipids that naturally occur in the skin's outer layer, the stratum corneum. When applied topically, ceramides can help strengthen the skin's natural barrier function, preventing moisture loss and protecting against environmental stressors. This can be particularly beneficial for individuals with dry, compromised skin.

Rosehip seed oil: Rosehip seed oil is a rich source of essential fatty acids, such as linoleic acid and alpha-linolenic acid, as well as retinoids. When applied topically, rosehip seed oil can help address signs of aging, improve skin hydration, and encourage cell regeneration, resulting in a more youthful, radiant appearance.

Turmeric: Turmeric, known for its vibrant yellow color, contains the active compound curcumin, which has potent anti-inflammatory and antioxidant properties. When used topically, turmeric-based products can help soothe skin conditions like eczema, psoriasis, and acne, thanks to its ability to reduce inflammation and oxidative stress.

These are just a few more examples of the diverse range of topical substances that have demonstrated beneficial effects on human health. Ongoing research continues to uncover the mechanisms by which these ingredients can positively impact skin health and appearance.

**Oatmeal:** Colloidal oatmeal, made from finely ground oats, has long been used as a soothing and anti-inflammatory agent for the skin. When applied topically, oatmeal can help alleviate symptoms of skin conditions like eczema, psoriasis, and atopic dermatitis. This is due to the presence of active compounds like avenanthramides and beta-glucans, which have calming and protective effects on the skin.

**Honey:** Honey has been recognized for its medicinal properties for centuries, and when applied topically, it can offer numerous benefits for the skin. Honey possesses antimicrobial, anti-inflammatory, and wound-healing properties, making it useful for treating various skin infections, burns, and ulcers. Additionally, honey's natural humectant properties can help keep the skin hydrated and promote a healthy skin barrier.

**Glycerin:** Glycerin is a humectant that is widely used in skincare products for its ability to attract and retain moisture in the skin. When applied topically, glycerin can help improve skin hydration, prevent transepidermal water loss, and maintain the skin's barrier function. This can be particularly beneficial for individuals with dry, dehydrated, or compromised skin.

**Chamomile:** Chamomile, a well-known medicinal herb, has been used topically for its soothing and anti-inflammatory properties. The active compounds in chamomile, such as apigenin and chamazulene, can help calm irritated skin, reduce redness, and alleviate symptoms of conditions like eczema and rosacea.

**Argan oil:** Argan oil is a rich source of fatty acids, including oleic and linoleic acid, as well as vitamin E. When applied topically, argan oil can help nourish and moisturize the skin, improve skin elasticity, and reduce the appearance of fine lines and wrinkles. It is often used in anti-aging and skin-conditioning products.

These are just a few more examples of the diverse range of topical substances that have demonstrated health benefits for the skin. The research in this field continues to evolve, providing new insights into the mechanisms and applications of these natural and synthetic compounds.

**Green tea:** Green tea is rich in polyphenols, particularly epigallocatechin gallate (EGCG), which have potent antioxidant and anti-inflammatory properties. When applied topically, green tea-based products can help protect the skin from environmental stressors, such as UV radiation, and may also be beneficial for addressing skin conditions like acne, eczema, and rosacea.

**Retinoids:** Retinoids, derived from vitamin A, are a class of compounds that have been extensively studied for their ability to improve skin health and appearance. When used topically, retinoids can stimulate collagen production, increase cell turnover, and reduce the appearance of fine lines, wrinkles, and hyperpigmentation. Prescription-strength retinoids, such as tretinoin, as well as over-the-counter retinol, are commonly used in anti-aging skincare products.

**Vitamin C:** Vitamin C is a powerful antioxidant that can provide numerous benefits when applied topically to the skin. It can help brighten the complexion, even out skin tone, and promote collagen synthesis, which can

reduce the appearance of fine lines and wrinkles. Vitamin C-based serums and creams are popular for their ability to improve skin health and protect against environmental damage.

**Niacinamide:** As mentioned earlier, niacinamide (vitamin B3) is a versatile ingredient with a wide range of benefits for the skin. When used topically, niacinamide has been shown to improve skin barrier function, regulate sebum production, and minimize the appearance of blemishes and hyperpigmentation. It is often included in acne-fighting and anti-aging skincare products.

**Probiotics:** While typically thought of as beneficial for gut health, probiotics can also provide benefits when applied topically to the skin. Topical probiotic-based products have been found to help balance the skin's microbiome, reduce inflammation, and support the skin's natural barrier function, which can be particularly helpful for individuals with conditions like acne, eczema, and rosacea.

These are just a few more examples of the diverse range of topical substances that have shown promise in supporting skin health and addressing various skin concerns. As research in this field continues to evolve, we may uncover even more exciting applications for these and other topical ingredients.

**Hyaluronic acid:** Hyaluronic acid is a naturally occurring substance in the skin that plays a crucial role in maintaining skin hydration and elasticity. When applied topically, hyaluronic acid can help attract and retain moisture in the skin, reducing the appearance of fine lines and wrinkles. It is a popular ingredient in moisturizers, serums, and other anti-aging skincare products.

**Vitamin E:** Vitamin E is a fat-soluble antioxidant that can provide various benefits when used topically. It can help protect the skin from oxidative stress caused by environmental factors, such as UV radiation and pollution. Vitamin E also has anti-inflammatory properties and can aid in wound healing, making it beneficial for addressing skin conditions like eczema and sunburn.

**Coenzyme Q10 (CoQ10):** Coenzyme Q10 is a powerful antioxidant that is naturally present in the skin. When applied topically, CoQ10 can help neutralize free radicals, reduce the appearance of fine lines and wrinkles, and improve overall skin health. It is often included in anti-aging skincare products.

**Peptides:** Peptides are short chains of amino acids that can have numerous beneficial effects on the skin when applied topically. Some peptides, such as those derived from collagen, can help stimulate the production of collagen and elastin, improving skin firmness and reducing the appearance of wrinkles. Other peptides have been shown to have anti-inflammatory and wound-healing properties.

**Willow bark extract:** Willow bark extract contains salicin, a compound that is similar to the active ingredient in aspirin (salicylic acid). When applied topically, willow bark extract can help exfoliate the skin, unclog pores, and reduce the appearance of blemishes and acne. It also has anti-inflammatory properties, making it useful for addressing various skin conditions.

These are just a few more examples of the diverse range of topical substances that have demonstrated potential health benefits for the skin. As research in this field continues to evolve, we may uncover even more exciting applications for these and other topical ingredients.

**Aloe vera:** Aloe vera is a succulent plant that has long been used for its soothing and healing properties when applied topically to the skin. The gel-like substance found inside aloe vera leaves contains various beneficial compounds, such as polysaccharides, anthraquinones, and vitamins, which can help reduce inflammation, promote wound healing, and provide hydration to the skin. Aloe vera is often used to soothe sunburns, minor skin irritations, and conditions like eczema.

**Ceramides:** Ceramides are naturally occurring lipids found in the skin's outermost layer, the stratum corneum. They play a crucial role in maintaining the skin's barrier function and preventing transepidermal water loss. When applied topically, ceramide-based products can help replenish the skin's lipid levels, improve skin hydration, and support the overall health and integrity of the skin barrier.

**Bakuchiol:** Bakuchiol is a plant-derived compound that has been gaining attention as a natural alternative to retinoids. When used topically, bakuchiol has been shown to have similar effects to retinoids, such as improving the appearance of fine lines and wrinkles, enhancing skin firmness, and reducing hyperpigmentation. Unlike retinoids, bakuchiol is less likely to cause skin irritation, making it a suitable option for those with sensitive skin.

**Squalane:** Squalane is a saturated and stable form of squalene, a naturally occurring lipid found in the skin. When applied topically, squalane can help replenish the skin's natural oils, improve skin hydration, and provide a protective barrier against environmental stressors. Squalane is often used in moisturizers, serums, and oil-based skincare products.

**Vitamin B5 (Panthenol):** Vitamin B5, also known as panthenol, is a humectant that can help improve skin hydration and promote a healthy skin barrier when applied topically. It has also been shown to have anti-inflammatory and wound-healing properties, making it useful for addressing various skin conditions, such as eczema, acne, and sunburns.

These are just a few more examples of the diverse range of topical substances that have demonstrated potential health benefits for the skin. As research in this field continues to evolve, we may uncover even more exciting applications for these and other topical ingredients.

**Centella Asiatica:** Also known as tiger grass or cica, Centella Asiatica is a medicinal herb that has been used in traditional Asian medicine for centuries. When applied topically, Centella Asiatica has been shown to have anti-inflammatory, antioxidant, and wound-healing properties. It can be beneficial for addressing skin conditions like eczema, psoriasis, and minor wounds, as well as improving overall skin health and resilience.

**Neem Oil:** Neem oil is derived from the neem tree, which is native to India and has been used in traditional medicine for its various therapeutic properties. When applied topically, neem oil has been found to have antimicrobial, anti-inflammatory, and analgesic (pain-relieving) effects, making it potentially useful for addressing skin conditions like acne, fungal infections, and even certain types of eczema.

**Turmeric:** Turmeric is a spice that contains curcumin, a potent antioxidant and anti-inflammatory compound. When used topically, turmeric-based products can help reduce inflammation, promote wound healing, and

potentially address skin conditions like acne, rosacea, and psoriasis. The vibrant yellow color of turmeric can also be used as a natural skin brightener and complexion enhancer.

**Sea Buckthorn:** Sea buckthorn is a hardy shrub that produces orange-yellow berries rich in vitamins, antioxidants, and essential fatty acids. When applied topically, sea buckthorn-derived products can help nourish and hydrate the skin, reduce inflammation, and potentially support the skin's natural healing process. It has been studied for its potential benefits in addressing conditions like eczema, sun damage, and skin aging.

**Propolis:** Propolis is a resinous substance produced by bees, known for its antimicrobial, anti-inflammatory, and antioxidant properties. When used topically, propolis-based products can help support the skin's natural healing and regenerative processes, making it potentially useful for addressing various skin conditions, such as acne, eczema, and minor wounds.

These are just a few more examples of the diverse range of topical substances that have demonstrated potential health benefits for the skin. As research in this field continues to evolve, we may uncover even more exciting applications for these and other topical ingredients.

**Green Tea:** Green tea is rich in polyphenols, particularly epigallocatechin gallate (EGCG), which have strong antioxidant and anti-inflammatory properties. When applied topically, green tea-based products can help protect the skin from environmental stressors, reduce the appearance of fine lines and wrinkles, and potentially address skin conditions like acne and rosacea due to its antimicrobial and sebum-regulating effects.

**Niacinamide:** Niacinamide, also known as vitamin B3, is a versatile ingredient that has gained popularity in the skincare industry. When used topically, niacinamide can help improve skin barrier function, reduce the appearance of fine lines and wrinkles, even out skin tone, and address concerns like acne and hyperpigmentation. It is often included in a wide range of skincare products, from serums and moisturizers to brightening and anti-aging formulas.

**Vitamin C:** Vitamin C is a powerful antioxidant that can provide numerous benefits when applied topically to the skin. It can help brighten the complexion, reduce the appearance of fine lines and wrinkles, and protect the skin from environmental stressors, such as UV radiation and pollution. Vitamin C-based products can also help address concerns like hyperpigmentation and uneven skin tone.

**Argan Oil:** Argan oil is derived from the kernels of the argan tree, which is native to Morocco. It is rich in beneficial fatty acids, vitamins, and antioxidants. When applied topically, argan oil can help nourish and hydrate the skin, improve skin elasticity, and potentially address various skin concerns, such as dryness, wrinkles, and even acne due to its antimicrobial properties.

**Rosehip Seed Oil:** Rosehip seed oil is extracted from the seeds of the rose plant and is known for its high content of vitamins, essential fatty acids, and antioxidants. When used topically, rosehip seed oil can help improve skin hydration, reduce the appearance of fine lines and wrinkles, and potentially address concerns like hyperpigmentation and scarring due to its regenerative and brightening properties.

These are just a few more examples of the diverse range of topical substances that have demonstrated potential health benefits for the skin. As research in this field continues to evolve, we may uncover even more exciting applications for these and other topical ingredients.

**Bakuchiol:** Bakuchiol is a plant-derived compound that has gained attention as a natural alternative to retinol. When applied topically, bakuchiol has been shown to have similar anti-aging and skin-rejuvenating effects as retinol, but without the potential irritation associated with retinol. Bakuchiol can help improve the appearance of fine lines, wrinkles, and uneven skin tone, making it a popular ingredient in various anti-aging skincare products.

**Hyaluronic Acid:** Hyaluronic acid is a naturally occurring polysaccharide that is found in the skin and plays a crucial role in maintaining skin hydration and plumpness. When used topically, hyaluronic acid-based products can help deeply hydrate the skin, reduce the appearance of fine lines and wrinkles, and improve overall skin texture and radiance.

**Ceramides:** Ceramides are lipids that are naturally present in the skin's outermost layer, the stratum corneum. They play a vital role in maintaining the skin's barrier function and preventing transepidermal water loss. When applied topically, ceramide-rich products can help strengthen the skin barrier, improve hydration, and potentially address concerns like dry, irritated, or compromised skin.

**Squalane:** Squalane is a highly stable and non-comedogenic (non-pore-clogging) oil that mimics the skin's natural sebum. When used topically, squalane can help deeply nourish and hydrate the skin without feeling heavy or greasy. It can also help improve skin softness, smoothness, and overall healthy appearance.

**Retinoids:** Retinoids, such as retinol and retinaldehyde, are derivatives of vitamin A that have been widely studied for their ability to improve the appearance of aging skin. When applied topically, retinoids can help reduce the appearance of fine lines and wrinkles, improve skin texture and tone, and even address concerns like acne and hyperpigmentation.

These are just a few more examples of the diverse range of topical substances that have demonstrated potential health benefits for the skin. As research in this field continues to evolve, we may uncover even more exciting applications for these and other topical ingredients.

**Propanediol:** Propanediol is a gentle, plant-derived humectant that helps improve skin hydration and the efficacy of other skincare ingredients. When used topically, propanediol can help enhance the skin's barrier function, improve the absorption of active ingredients, and provide a soothing, non-irritating effect. It is often included in a variety of skincare formulations, from serums and moisturizers to cleansers and toners.

**Polyglutamic Acid:** Polyglutamic acid is a relatively new skincare ingredient that has gained attention for its exceptional water-binding capabilities. When applied topically, polyglutamic acid can provide long-lasting hydration and plumpness to the skin, helping to reduce the appearance of fine lines and wrinkles. It is particularly beneficial for individuals with dry or dehydrated skin.

**Resveratrol:** Resveratrol is a polyphenol compound found in the skin of red grapes and other plant sources. When used topically, resveratrol has been shown to have potent antioxidant and anti-inflammatory properties, which can help protect the skin from environmental stressors and address concerns like premature aging, uneven skin tone, and blemishes.

**Panthenol:** Panthenol, also known as pro-vitamin B5, is a humectant that can help improve skin hydration and support the skin's barrier function. When applied topically, panthenol has been found to have soothing, calming, and healing properties, making it beneficial for addressing various skin concerns, such as irritation, dryness, and minor wounds.

**Botanical Stem Cells:** Botanical stem cells, derived from plants like apple, grape, or lilac, have gained attention in the skincare industry for their potential to promote skin regeneration and rejuvenation. When used topically, botanical stem cell-based products may help improve the appearance of fine lines, wrinkles, and uneven skin tone, while also supporting the skin's natural repair processes.

These are just a few more examples of the diverse range of topical substances that have demonstrated potential health benefits for the skin. As research in this field continues to evolve, we may uncover even more exciting applications for these and other topical ingredients.

**Centella Asiatica:** Also known as cica or tiger grass, Centella asiatica is a medicinal herb that has gained popularity in the skincare industry. When applied topically, Centella asiatica has been shown to have anti-inflammatory, antioxidant, and wound-healing properties, making it beneficial for addressing various skin concerns such as redness, irritation, and scarring.

**Niacinamide and Zinc:** The combination of niacinamide (vitamin B3) and zinc has been found to be particularly effective for addressing acne-prone skin. Niacinamide can help regulate sebum production and reduce the appearance of blemishes, while zinc has antimicrobial and anti-inflammatory properties that can help calm and soothe the skin.

**Glycerin:** Glycerin is a humectant that helps draw moisture into the skin and prevent transepidermal water loss. When used topically, glycerin-based products can help improve skin hydration, plumpness, and overall healthy appearance, making it a useful ingredient in a wide range of skincare formulations.

**Peptides:** Peptides are short chains of amino acids that can have various beneficial effects on the skin when applied topically. Some peptides have been found to stimulate collagen production, improve skin elasticity, and reduce the appearance of fine lines and wrinkles, while others have anti-inflammatory or soothing properties.

**Fermented Ingredients:** Fermented ingredients, such as yeast, rice, and various botanical extracts, have gained attention in the skincare industry for their potential to improve skin health. When used topically, fermented ingredients may help enhance the skin's barrier function, provide antioxidant protection, and address concerns like dullness and uneven skin tone.

These are just a few more examples of the diverse range of topical substances that have demonstrated potential health benefits for the skin. As research in this field continues to evolve, we may uncover even more exciting

applications for these and other topical ingredients.

**Coenzyme Q10 (CoQ10):** Coenzyme Q10 is a powerful antioxidant that plays a crucial role in cellular energy production. When applied topically, CoQ10 has been found to help protect the skin from oxidative stress, reduce the appearance of fine lines and wrinkles, and improve overall skin health and radiance.

**Ferulic Acid:** Ferulic acid is a plant-derived antioxidant that has gained attention in the skincare industry for its ability to enhance the efficacy of other antioxidants, such as vitamins C and E. When used in combination with these other antioxidants, ferulic acid can help provide enhanced protection against environmental stressors and address concerns like premature aging and uneven skin tone.

**Azelaic Acid:** Azelaic acid is a naturally occurring dicarboxylic acid that has been found to have both antimicrobial and anti-inflammatory properties. When applied topically, azelaic acid can be beneficial for addressing concerns like acne, rosacea, and hyperpigmentation, as it can help regulate sebum production, reduce inflammation, and even out skin tone.

**Gluconolactone:** Gluconolactone is a poly-hydroxy acid (PHA) that has a gentler exfoliating effect on the skin compared to alpha-hydroxy acids (AHAs) like glycolic acid. When used topically, gluconolactone can help improve skin texture, reduce the appearance of fine lines and wrinkles, and address concerns like uneven skin tone and clogged pores, without causing excessive irritation.

**Kojic Acid:** Kojic acid is a natural ingredient derived from fungi that has been studied for its ability to inhibit the production of melanin, the pigment responsible for skin discoloration. When applied topically, kojic acid-based products may help address concerns like age spots, sun damage, and post-inflammatory hyperpigmentation.

These are just a few more examples of the diverse range of topical substances that have demonstrated potential health benefits for the skin. As research in this field continues to evolve, we may uncover even more exciting applications for these and other topical ingredients.

**Hyaluronic Acid:** Hyaluronic acid is a powerful humectant that can hold up to 1,000 times its weight in water. When applied topically, hyaluronic acid helps attract and retain moisture in the skin, plumping and hydrating the complexion. It can help reduce the appearance of fine lines and wrinkles, and is beneficial for all skin types, especially those dealing with dehydration.

**Squalane:** Squalane is a lightweight, non-greasy emollient that closely resembles the natural sebum produced by the skin. When used topically, squalane can help strengthen the skin's barrier, lock in moisture, and provide a smooth, non-drying finish. It is particularly beneficial for dry, mature, or sensitive skin types.

**Bakuchiol:** Bakuchiol is a plant-derived ingredient that has been compared to retinol for its ability to improve the appearance of fine lines, wrinkles, and uneven skin tone. Unlike retinol, bakuchiol is generally considered more gentle and less irritating, making it a suitable alternative for those with sensitive skin.

**Copper Peptides:** Copper peptides are a type of peptide complex that has been found to stimulate collagen and elastin production, as well as possess antioxidant and anti-inflammatory properties. When used topically,

copper peptide-based products may help improve skin firmness, reduce the appearance of wrinkles, and promote a more youthful, radiant complexion.

**Astaxanthin:** Astaxanthin is a powerful antioxidant carotenoid derived from microalgae. When applied topically, astaxanthin has been shown to help protect the skin from UV-induced damage, reduce inflammation, and improve the appearance of fine lines and wrinkles. It is considered one of the most potent natural antioxidants available.

These are just a few more examples of the diverse range of topical substances that have demonstrated potential health benefits for the skin. As research in this field continues to evolve, we may uncover even more exciting applications for these and other topical ingredients.

**Niacinamide and Retinol:** The combination of niacinamide (vitamin B3) and retinol is a powerful one-two punch for addressing a variety of skin concerns. Niacinamide can help regulate sebum production, improve skin texture, and reduce the appearance of fine lines and discoloration, while retinol stimulates collagen production and enhances skin cell turnover. When used together, these ingredients can provide comprehensive anti-aging and complexion-perfecting benefits.

**Vitamin C and Vitamin E:** Vitamin C and vitamin E are both potent antioxidants that work synergistically to protect the skin from environmental stressors and oxidative damage. When applied topically, this dynamic duo can help brighten the complexion, reduce the appearance of fine lines and wrinkles, and promote an overall healthy, radiant glow.

**Ceramides:** Ceramides are naturally occurring lipids that play a crucial role in maintaining the skin's protective barrier. When applied topically, ceramide-rich products can help replenish the skin's lipid content, improve hydration, and strengthen the skin's resistance to environmental aggressors.

**Botanical Extracts:** A wide variety of botanical extracts, such as green tea, chamomile, and licorice root, have been incorporated into skincare formulations for their potential therapeutic benefits. These natural ingredients can possess anti-inflammatory, antioxidant, and soothing properties, making them beneficial for addressing issues like redness, irritation, and uneven skin tone.

**Probiotics:** Topical probiotic-infused products have gained attention for their ability to support the skin's microbiome and promote a healthy, balanced complexion. When applied to the skin, probiotics may help strengthen the skin's barrier, reduce inflammation, and address concerns like acne and sensitivity.

These are just a few additional examples of the diverse range of topical substances that have demonstrated potential health benefits for the skin. As research in this field continues to advance, we may uncover even more exciting applications for these and other topical ingredients.

**Centella Asiatica:** Also known as cica or gotu kola, centella asiatica is a plant extract that has been used in traditional medicine for its soothing and regenerative properties. When applied topically, centella asiatica has been shown to help improve skin barrier function, reduce inflammation, and promote wound healing. It is particularly beneficial for sensitive, reactive, or compromised skin.

Peptides: Peptides are short chains of amino acids that can help target specific skin concerns when applied topically. Different peptides have been studied for their ability to stimulate collagen production, improve skin elasticity, reduce the appearance of wrinkles, and even inhibit the activity of enzymes that break down the skin's structure.

Retinaldehyde: Retinaldehyde is a form of vitamin A that is considered more gentle and less irritating than traditional retinol, while still offering many of the same benefits. Topical retinaldehyde can help improve skin cell turnover, reduce the appearance of fine lines and wrinkles, and address concerns like acne and hyperpigmentation.

Hydroxypinacolone Retinoate (HPR): HPR is a retinoid ester that has been found to provide many of the anti-aging benefits of retinol, but with a lower risk of irritation. When used topically, HPR can help stimulate collagen production, improve skin texture, and reduce the appearance of fine lines and wrinkles.

Polyhydroxy Acids (PHAs): In addition to gluconolactone, other polyhydroxy acids like lactobionic acid and maltobionic acid are gaining traction in the skincare world. These gentler exfoliating agents can provide similar benefits to alpha-hydroxy acids, but with a reduced risk of irritation, making them suitable for even the most sensitive skin types.

These are just a few more examples of the diverse range of topical substances that have demonstrated potential health benefits for the skin. As research in this field continues to evolve, we may uncover even more exciting applications for these and other topical ingredients.

Narrow down the five most beneficial to the average person

Assistant

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Based on the information provided, here are the 5 most beneficial topical substances for the average person:

Hyaluronic Acid:

Powerful humectant that can hold up to 1,000 times its weight in water

Helps attract and retain moisture in the skin, plumping and hydrating the complexion

Beneficial for all skin types, especially those dealing with dehydration

Vitamin C and Vitamin E:

Both are potent antioxidants that work synergistically to protect the skin

Can help brighten the complexion, reduce the appearance of fine lines and wrinkles

Promote an overall healthy, radiant glow

Niacinamide and Retinol:

Niacinamide can help regulate sebum production, improve skin texture, and reduce discoloration

Retinol stimulates collagen production and enhances skin cell turnover

Together, they provide comprehensive anti-aging and complexion-perfecting benefits

Ceramides:

Play a crucial role in maintaining the skin's protective barrier

Help replenish the skin's lipid content, improve hydration, and strengthen the skin's resistance

Botanical Extracts (e.g. green tea, chamomile, licorice root):

Possess anti-inflammatory, antioxidant, and soothing properties

Beneficial for addressing issues like redness, irritation, and uneven skin tone

These 5 topical substances cover a range of benefits, from hydration and barrier repair to anti-aging and soothing properties. They are generally well-tolerated and can provide significant improvements to the skin's overall health and appearance for the average person.

Narrow down the 10 most beneficial to the elderly over the age of 70

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Here are the 10 most beneficial topical substances for the elderly over the age of 70:

Retinoids (Retinol, Retinaldehyde, Hydroxypinacolone Retinoate):

Stimulate collagen production and cell turnover to reduce the appearance of fine lines and wrinkles

Help improve skin texture and firmness

May need to start with lower concentrations to minimize irritation

Vitamin C:

Powerful antioxidant that can help brighten and even skin tone

Supports collagen production for improved skin elasticity

May help diminish the appearance of age spots and discoloration

Hyaluronic Acid:

Deeply hydrates and plumps the skin, reducing the look of fine lines

Helps strengthen the skin's protective barrier as it matures

Can be beneficial for dry, dehydrated skin common in the elderly

Niacinamide:

Regulates sebum production and improves skin texture

Helps visibly reduce the appearance of enlarged pores

May also help soothe redness and blotchiness

Ceramides:

Replenish the skin's natural lipid content to strengthen the barrier

Improve moisture levels and overall hydration

Important for mature skin that becomes drier with age

Peptides:

Stimulate collagen and elastin production to firm and tighten skin

Help minimize the appearance of wrinkles and sagging

Some peptides may also have skin-soothing properties

Botanical Extracts (e.g. green tea, chamomile, licorice root):

Provide anti-inflammatory and antioxidant benefits

Can help calm redness, irritation, and sensitivity common in aging skin

May also help even out skin tone and brighten the complexion

Polyhydroxy Acids (PHAs):

Gently exfoliate to improve cell turnover and smooth texture

Less irritating than traditional alpha-hydroxy acids

Suitable for delicate, mature skin types

Probiotic Extracts:

Help strengthen the skin's microbiome and barrier function

May reduce inflammation and address issues like dryness and sensitivity

Important for maintaining a healthy complexion as skin matures

Centella Asiatica:

Possesses soothing and regenerative properties

Can help improve skin barrier function and reduce inflammation

Beneficial for sensitive, reactive, or compromised mature skin

This selection of topical substances addresses the key concerns of aging skin, such as loss of elasticity, dryness, uneven tone, and sensitivity. By incorporating these ingredients, the elderly can help support their skin's health and appearance as they get older.

